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ABSTRACT

Recent studies have revealed that 5-year-old children can be induced to produce visually realistic drawings, either by manipulating the nature of the model which is being drawn, or by turning the drawing task into a communicative game. However, it has also been found that 5-year-olds cannot be induced to produce visually realistic drawings merely because they have been given highly explicit verbal instructions to do so. The present paper reports two experiments, both involving 160 subjects, which were designed to explore this matter further. The first experiment, which required that subjects draw either two balls or one cup, indicated that, contrary to previous findings, explicit instructions can sometimes elicit visually realistic drawings from 5-year-old children. The second experiment, which required children to draw two balls, indicated that it is the content rather than the length of the explicit instructions which induces children to produce visually realistic drawings. (Author/RH)

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VISUAL REALISM IN CHILDREN'S DRAWINGS: THE EFFECT OF INSTRUCTIONS

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ABSTRACT

Recent studies have revealed that 5-year-old children can be induced to produce visually realistic drawings, either by manipulating the nature of the model which is being drawn (Cox 1981, 1985; Davis 1983) or by turning the drawing task into a communicative game (Light & McEwan 1987). However, it has also been found that 5-year-old children cannot be induced to produce visually realistic drawings merely by giving them highly explicit verbal instructions to do so (Barrett, Beaumont & Jennett 1985). The present paper reports two experiments which were designed to explore this matter further. The first experiment indicates that, contrary to previous findings, explicit instructions can sometimes elicit visually realistic drawings from 5-year-old children; the second experiment indicates that it is the content rather than the length of the explicit instructions which induces children to produce visually realistic drawings.

EXPERIMENT ONE

Subjects

80 children aged between 5 and 6 years old (mean age 5 years 5 months), and 80 children aged between 6½ and 7½ years old (mean age 7 years 0 months), were randomly selected from 3 schools in London and 2 schools in Devon (with each school contributing an equal number of children to the younger and to the older group).

Materials

Each child had to draw either two balls or one cup in this experiment. The balls which were used both measured 7 cm in diameter. They were placed on a table about 2 feet away from where the child was sitting, and one ball was placed immediately behind the other ball so that it was partially occluded when viewed from the child's position. The cup which was used was plain white and was 9 cm high. It was placed on the table about 2 feet away from the child, and orientated with its handle turned away from the child so that the handle was invisible from

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the child's point of view. Each child used a sheet of plain white A4 paper and a black pencil for making the drawing.

Procedure

Children were asked to make their drawings of either the balls or the cup by using either one of two different verbal instructions:
Explicit instructions: "Please can you draw this for me, exactly as you can see it from where you are sitting. Look very carefully at it while you are drawing it so that you can draw it just as you see it. Please do not touch it or leave your seat."
Inexplicit instructions: "Please can you draw this for me. Please do not touch it or leave your seat."

There were therefore 8 conditions in this experiment, with 20 children being randomly assigned (within their age group) to each condition:

Condition	Subjects' Age	Model	Instructions
1	5-6	balls	explicit
2	5-6	balls	inexplicit
3	5-6	cup	explicit
4	5-6	cup	inexplicit
5	6½-7½	balls	explicit
6	6½-7½	balls	inexplicit
7	6½-7½	cup	explicit
8	6½-7½	cup	inexplicit

The children were tested individually. Each child sat with the experimenter at the table; after establishing rapport, the experimenter then placed the appropriate model on the table about 2 feet in front of the child. The child was then asked to draw the model using either the explicit or the inexplicit instructions. No signs of approval or disapproval were given while the drawing was being made. The children were given as long as they required to complete their drawings.

Each drawing was then classified as either visually realistic (VR) or not visually realistic (NVR). Drawings of the balls were classified as VR if they depicted one ball as being partially occluded by the other ball by the successful implementation of hidden line elimination. Drawings of the cup were classified as VR if no attempt had been made to draw the handle. All other drawings were classified as NVR (see Figure 1). This classification of the drawings was performed independently by two different judges; there was 100% agreement between their classifications.

Results

The results which were obtained are shown in Table 1 (penultimate row). Statistical analysis revealed that the nature of the model (drawing the cup as opposed to the balls) had not affected the number of

VR drawings produced (i.e. there were no significant differences within each pair of results shown in Table 1, penultimate row). Consequently, the results were pooled across the two models to facilitate further analysis (see Table 1, final row). Statistical analysis of these pooled results revealed that changing the instructions had significantly affected the drawings of the younger children ($\chi^2(1) = 4.24$, $p < 0.05$) and the drawings of the older children ($\chi^2(1) = 4.06$, $p < 0.05$). It was also found that the drawings of the younger children differed significantly from the drawings of the older children, both when inexplicit instructions had been used ($\chi^2(1) = 7.46$, $p < 0.01$) and when explicit instructions had been used ($\chi^2(1) = 7.31$, $p < 0.01$).

Conclusions

The degree of visual realism exhibited in the children's drawings was not affected by the type of model which was drawn. The degree of visual realism was affected, however, by the instructions which were used (in both age groups). In addition, the older children produced more visually realistic drawings than the younger children.

A discrepancy

Note that the findings of this experiment differ from the findings of Barrett, Beaumont & Jennett (1985), who found that the degree of visual realism exhibited by 5-6 year olds in their drawings was not affected by the type of verbal instructions which were used. This difference in the findings of the two studies can be seen most clearly from Table 2, which presents directly comparable figures from the two studies (these figures were all obtained when two balls were used as the model). The differences in the figures which were obtained in the two studies when using explicit instructions with 5-6 year olds, and when using inexplicit instructions with 6½-7½ year olds, suggest that the present study may have used a developmentally more advanced sample of children than the previous study. It is therefore pertinent to note that there was a sampling difference between the two studies: the previous study drew all of its subjects from Inner London schools, whereas the present study also drew a large proportion of its subjects from 2 schools in Devon.

EXPERIMENT TWO

This experiment was designed to establish whether it is the length or the content of explicit instructions which induces children to produce visually realistic drawings.

Subjects

160 children aged 7-8 years old (mean age 7 years 11 months) were randomly selected from 4 schools in London and 1 school in Kent.

Materials

Each child had to draw two balls which measured 7 cm in diameter. The balls were placed on a table about 2 feet away from where the child was sitting, and one ball was placed immediately behind the other ball so that it was partially occluded when viewed from the child's position. Each child used a sheet of plain white A4 paper and wax crayons for making the drawing.

Procedure

Children were asked to make their drawings by using one of four different verbal instructions:
(i) Explicit, long: "Please can you draw these two balls for me exactly as you can see them from where you are sitting. Look very carefully at them so you draw them just as you see them. Please do not touch them or move from your chair."
(ii) Inexplicit, long: "Can you please use this crayon to draw the two balls which are on the table. Please make sure that you do not touch the two balls or move from your chair. Here is a crayon, you may now start to do the drawing."
(iii) Explicit, short: "Please draw these balls as carefully and exactly as you see them. Don't touch them or move from your chair."
(iv) Inexplicit, short: "Can you please draw the two balls on the table for me, without touching them or moving from your chair."
Instructions (i) and (ii) both contained 44 words; instructions (iii) and (iv) both contained 20 words. Instructions (i) and (iii) were both judged to be explicit requests for visually realistic drawings; instructions (ii) and (iv) were both judged to be inexplicit requests for any type of drawing of the two balls.

There were therefore four conditions in this experiment, each of which was characterized by a different verbal instruction; 40 children were randomly assigned to each condition.

The children were tested individually, using the same procedure as was used in Experiment One. The drawings were also classified in the same way as the drawings of the balls were classified in Experiment One (see Figure 1); two independent judges obtained 100% agreement in their classifications of the drawings.

Results

The results which were obtained are shown in Table 3. Statistical analysis revealed that:
(i) the long-explicit instructions had elicited significantly more visually realistic drawings than the long-inexplicit instructions ($\chi^2(1) = 16.2$, $p < 0.01$);
(ii) the short-explicit instructions had elicited significantly more visually realistic drawings than the short-inexplicit instructions ($\chi^2(1) = 8.8$, $p < 0.01$);

(iii) when the long-explicit and the short-explicit instructions had been used, there were no significant differences between the drawings which had been produced ($\chi^2(1) = 1.3$, $p > 0.1$);
(iv) when the long-inexplicit and the short-inexplicit instructions had been used, there were no significant differences between the drawings which had been produced ($\chi^2(1) = 0.02$, $p > 0.1$).

Conclusion

It is the content rather than the length of an explicit instruction which induces children to produce visually realistic drawings.

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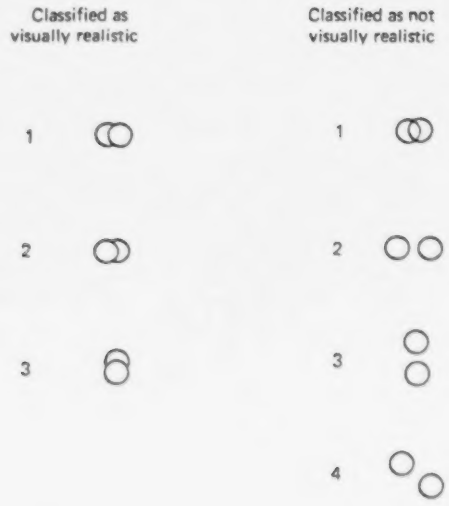
FIGURE 1: The classification of the drawings.

(a) The drawings of the balls.



(b) The drawings of the cup.

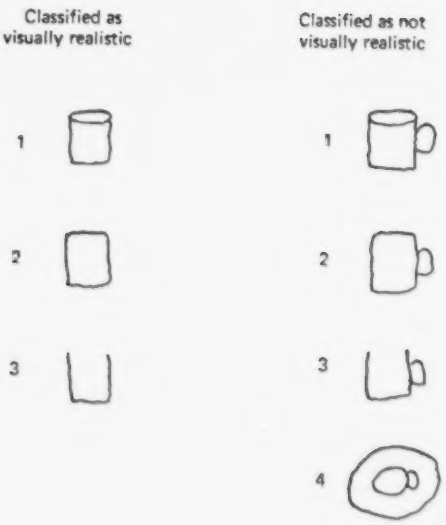


TABLE 1: The results obtained in Experiment One.

Age	5-6				6½-7½			
Instructions	inexplicit		explicit		inexplicit		explicit	
Model	balls	cup	balls	cup	balls	cup	balls	cup
Number of VR drawings produced (out of 20)	0	3	4	7	9	5	11	13
Number of VR drawings produced irrespective of model (out of 40)	3		11		14		24	

TABLE 2: The percentage of visually realistic drawings obtained by Barrett, Beaumont & Jennett (1985) and in Experiment One when balls were used as the model.

	Inexplicit 5-6	Explicit 5-6	Inexplicit 6½-7½	Explicit 6½-7½
Barrett, Beaumont & Jennett (1985)	0	0	11	65
Experiment One	0	20	45	55

TABLE 3: The results obtained in Experiment Two. The figures represent the total number of visually realistic drawings (out of 40) which were obtained in each condition.

		TYPE OF INSTRUCTION	
		Explicit	Inexplicit
LENGTH OF INSTRUCTION	Long	29	10
	Short	23	9